

July 2, 1929.

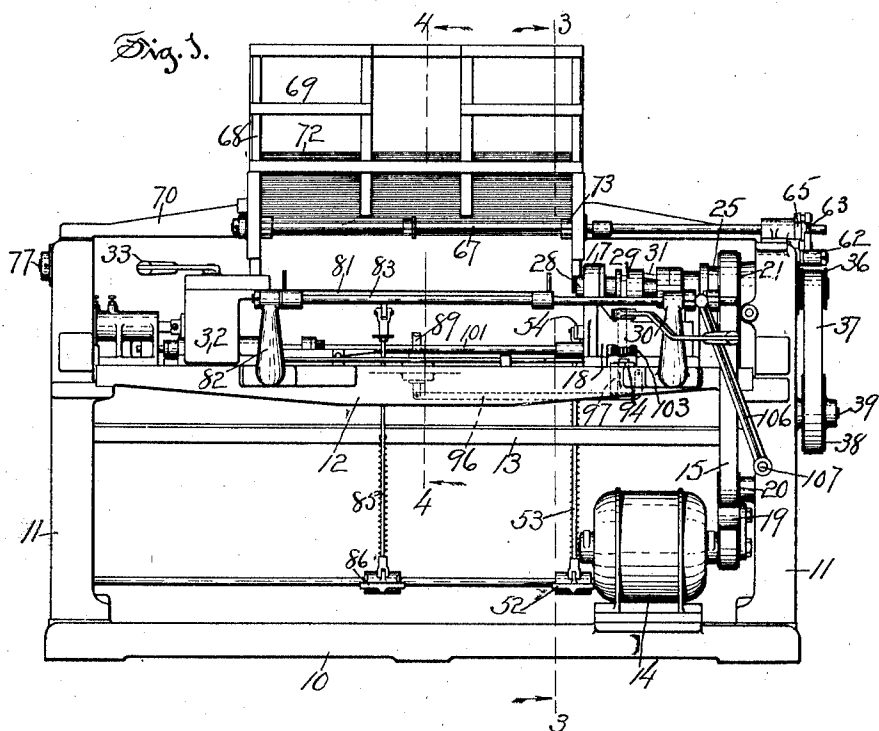
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1,719,093

MOP MAKING MACHINE

Filed July 3, 1926

6 Sheets-Sheet 1



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July 2, 1929.

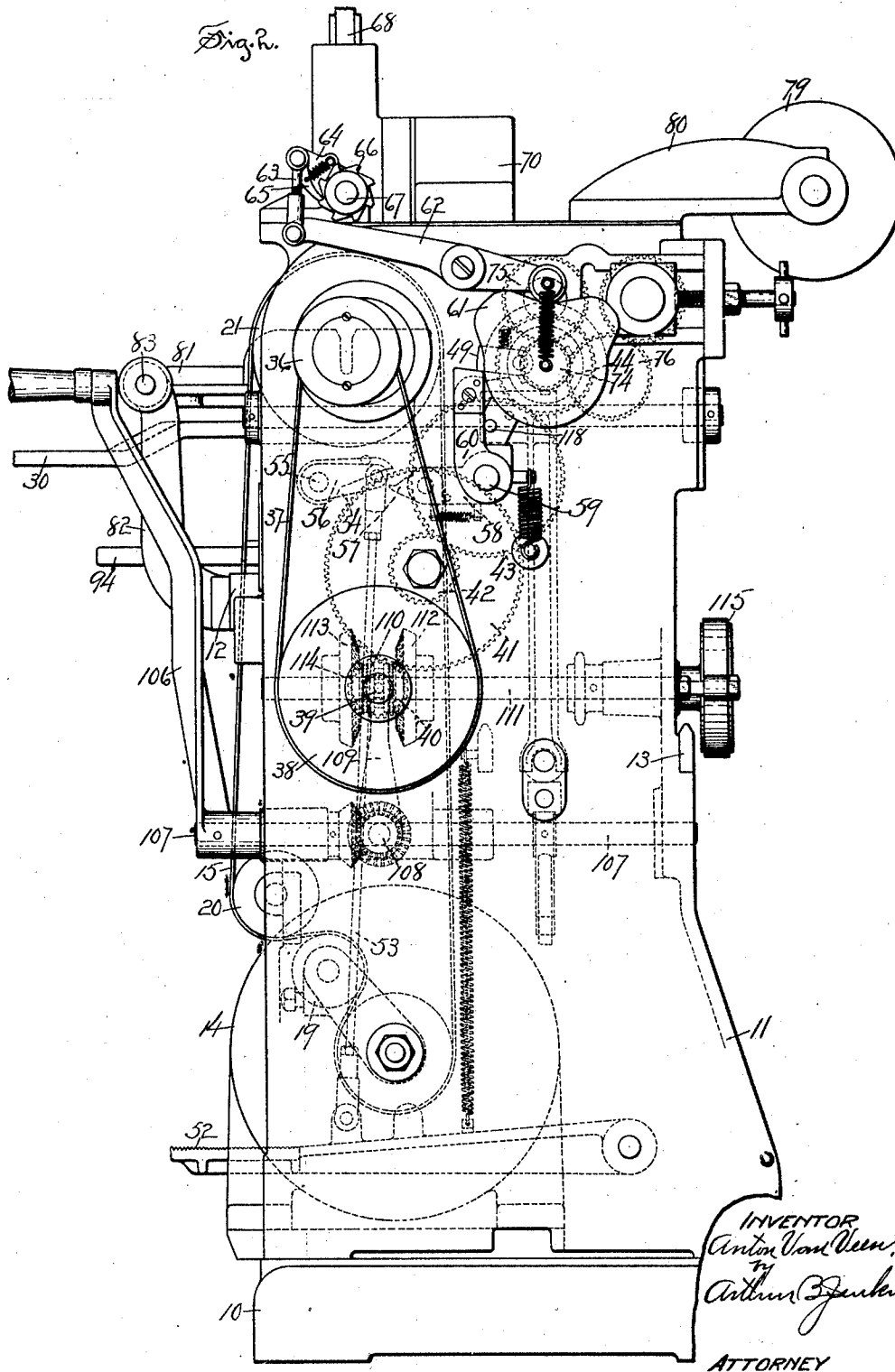
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MOP MAKING MACHINE

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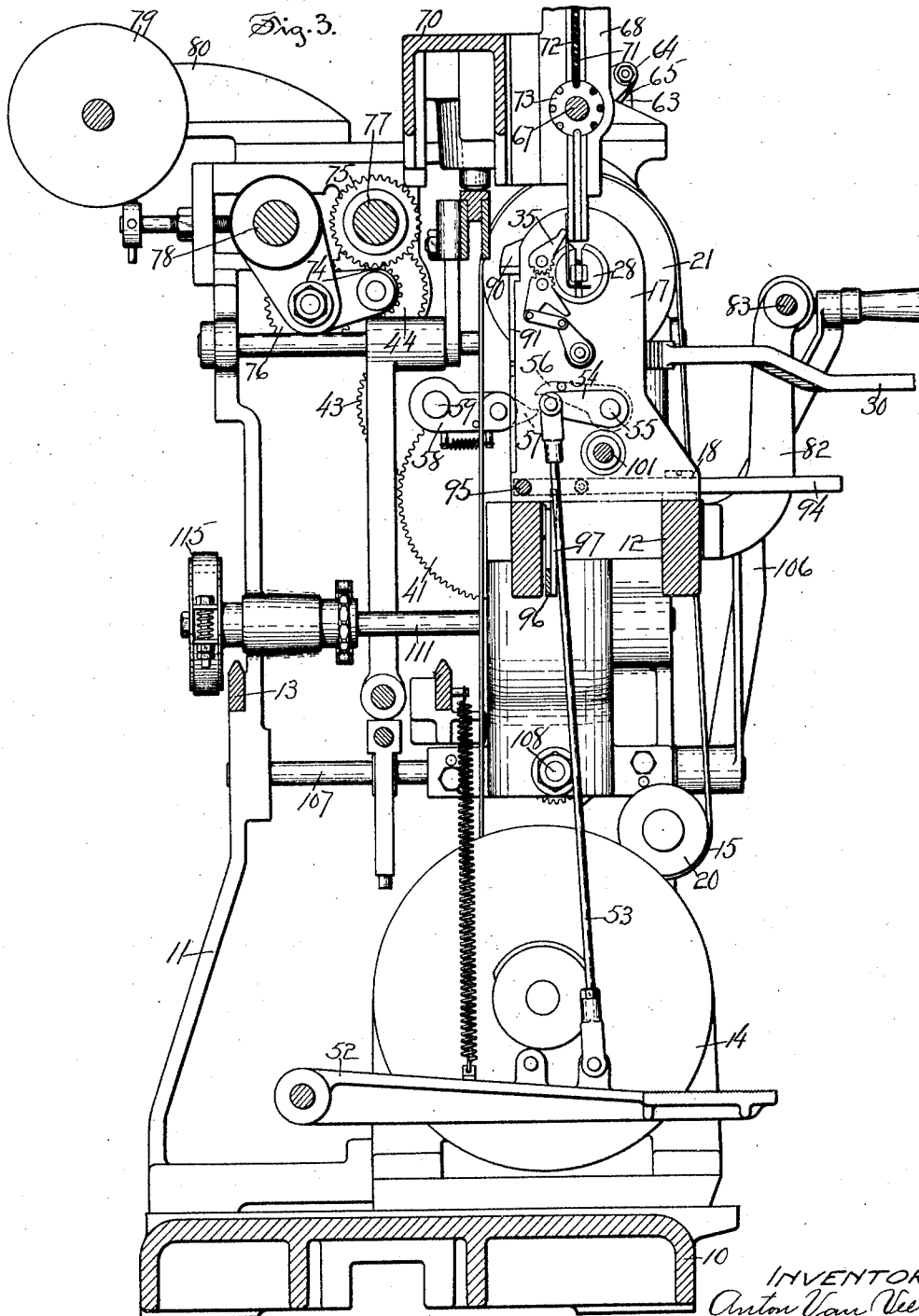
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MOP MAKING MACHINE

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6 Sheets-Sheet 3



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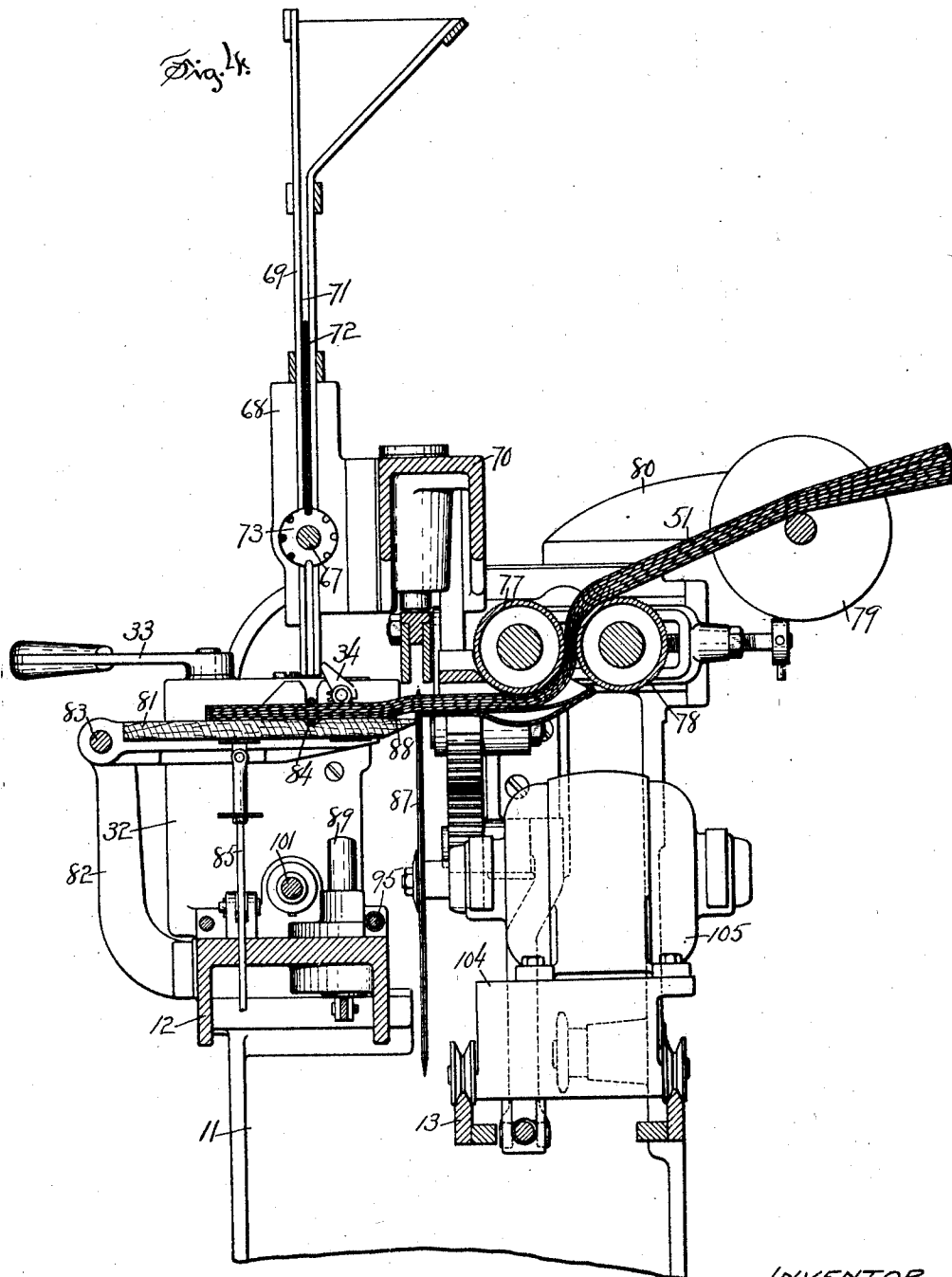
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MOP MAKING MACHINE

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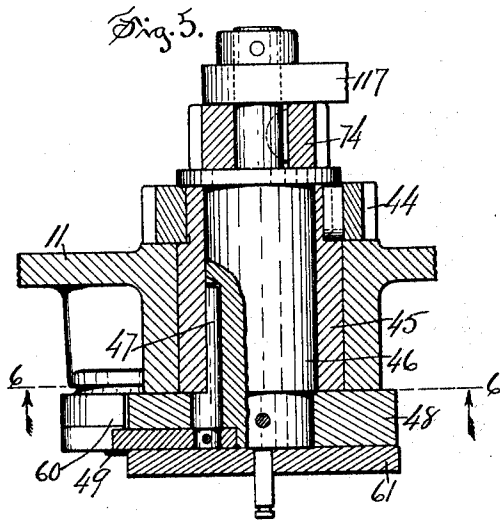
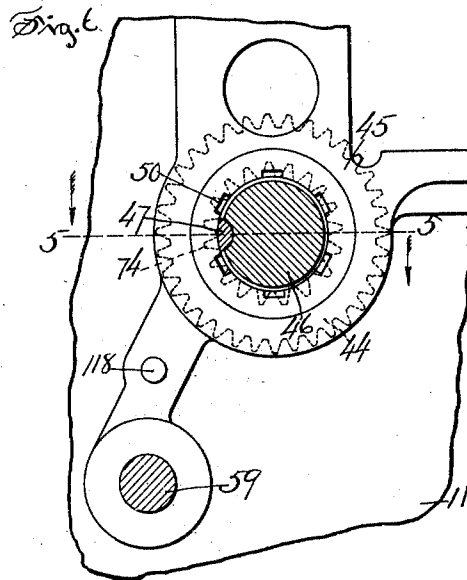
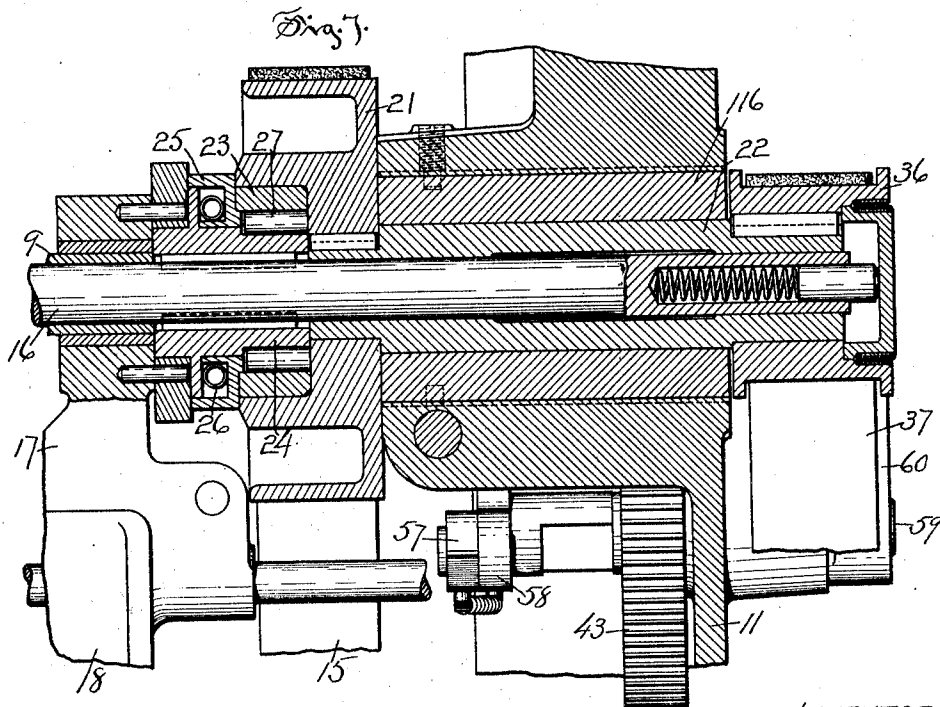
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1,719,093

6 Sheets-Sheet 5



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MOP MAKING MACHINE

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Fig. 9.

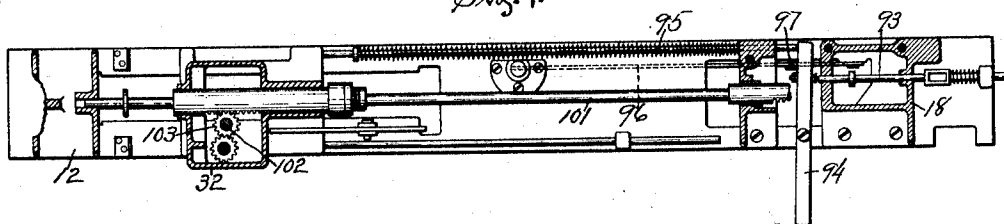


Fig. 10.

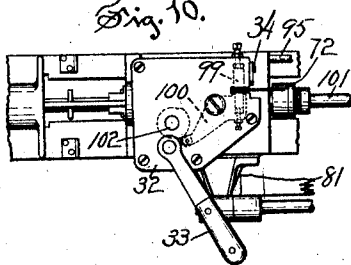
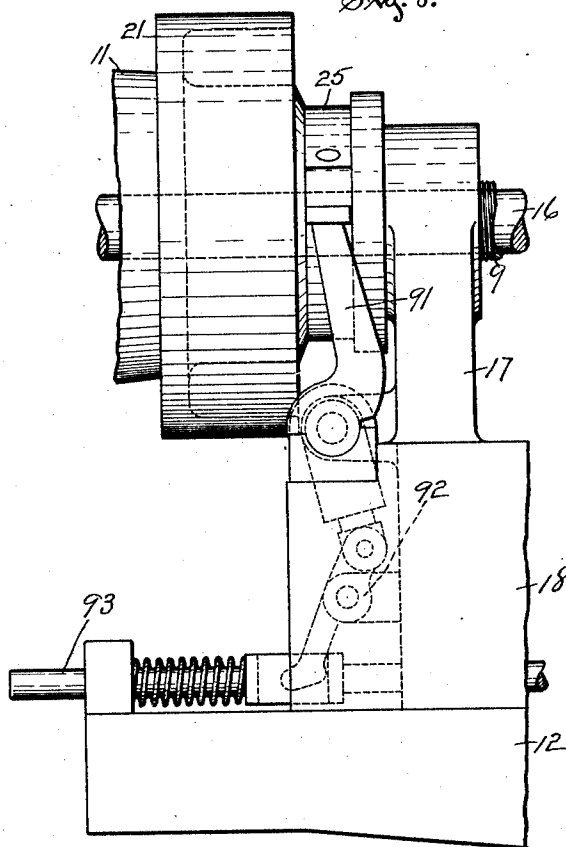


Fig. 8.



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MOP-MAKING MACHINE.

Application filed July 3, 1926. Serial No. 120,357.

This invention relates to that class of machines embodying means for securing material comprising strands of cotton, or other suitable substance, between twisted wires for the purpose of forming mops or other similar articles, and an object of the invention, among others, is the production of a machine of this class that shall be rapid and particularly efficient in operation.

One form of device embodying this invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawings, in which—

Figure 1 is a view in front elevation of a machine embodying the invention.

Figure 2 is an end view of the same, scale enlarged, looking from the right of the machine as seen in Figure 1.

Figure 3 is a view in section, scale the same as Figure 2, on a plane denoted by the dotted line 3—3 of Figure 1.

Figure 4 is a view to the same scale and on a plane denoted by the dotted line 4—4 of Figure 1.

Figure 5 is a detail view illustrating the construction and operation of the clutch mechanism and on a plane denoted by the dotted line 5—5 of Figure 6.

Figure 6 is a detail view on a plane denoted by the dotted line 6—6 of Figure 5.

Figure 7 is a detail view in section illustrating the driving mechanism, the scale of Figures 5, 6 and 7, being enlarged from that of Figures 2, 3 and 4.

Figure 8 is a detail view, scale enlarged, illustrating the operation of the twisting clutch.

Figure 9 is a detail view, scale reduced, illustrating the connection between the twisting clutch mechanism and the tail stock.

Figure 10 is a detail top view of that end of the machine embodying the tail stock.

In the accompanying drawings the numeral 10 denotes the bed, 11 the ends, 12 a beam connecting the ends and 13 rails for supporting cutting mechanism, said parts constituting substantially the frame of the machine as a whole. A motor 14 is supported on the bed and is connected as by a belt 15 with the live spindle 16 of a twisting mechanism, said spindle being supported at one end in a bearing on an end of the frame,

and said spindle also being supported in bearings in uprights 17 comprising a bracket 18 supported on the beam 12. The belt passes, near its lower end, in contact with a tensioning pulley 19 and an idler 20, said tensioning pulley being mounted in any ordinary manner and applying the required tension to the belt, the latter at its upper end passing around a driving pulley 21 keyed to a sleeve 22. Said pulley contains, secured in a recess in its hub, one member 23 of a roller clutch of ordinary construction, the other member 24 of said clutch being splined to the spindle as a means for intermittently driving said spindle. This clutch, which is shown more in detail in my copending application of S. No. 120,359 (Case III) filed concurrently herewith on July 3, 1926, embodies a housing 25 that contains actuating springs and that has segments (not shown) engaging clutch rollers 27 located in wedge shaped spaces between the clutch members, one end of each spring 26 being secured to the housing and the other end of each spring being secured to the clutch member 24. These springs normally rotate the clutch members in opposite directions whereby the rollers are moved by the segments into the narrow parts of the spaces between the clutch members.

The clutch members are retained in unclutched positions by means of a nose 90 on the housing 25 engaging a clutch disengaging lever 91 pivotally supported on an upright 17 and actuated by means of a clutch actuating lever 92 pivotally mounted on the bracket 18 and pivotally connected at one end with said disengaging lever and with its other end loosely engaged with a clutch actuating rod 93 slidably mounted on the bracket 18. The end of this rod is in the path of movement of a clutch controlling lever 94 mounted on the beam 12, said lever being extended to provide a handle for manual operation and its opposite end being located in the path of movement of a spring pressed controlling rod 95 mounted for sliding movement on said beam and with its end opposite said lever in the path of movement of a tail stock 32 to be hereinafter described.

To start the twisting operation the handle of the lever 94 is manually operated, thereby, through the connections above described, re-

moving the lever 91 from underneath the nose 90 on the housing 25. This permits the springs 26 to operate the clutch members and move the rollers 27 into the narrow spaces between the clutch members, whereby the latter are clutched together and the spindle is rotated to effect the twisting operation of the wires held in the chuck on the forward end of the spindle in a manner that will be readily understood, the opposite ends of said wires being held by clamping jaws on the tail stock. The parts will be retained in these operative positions until the tail stock is moved forward, which it will do by the force exerted by the wires which shorten as they are twisted. This movement of the tail stock causes the rod 95 to engage the lever 94 swinging it on its pivot and thereby moving the rod 93 that swings the lever 91 on its pivot into the path of movement of the nose 90. As soon as the nose comes in contact with the end of the lever the clutch members are swung in opposite directions against the tension of the springs 26, this moving the rollers into the wide parts of the spaces and disengaging the clutch members and stopping the rotation of the spindle.

A spring on the rod 93 acts to move the lever 94 to disengage the lever 91 from the nose 90, but said lever 94 is held against movement under the influence of said spring by means of a detent lever 96 pivotally mounted on the beam 12 and having a detent 97 projecting to engage said lever. The opposite end of the detent lever is pivotally connected to a clutch controlling plunger 89 located in the path of movement of a table 81 (hereinafter referred to) when the latter is lowered as by operation of a treadle 86 (also hereinafter mentioned). A further illustration and detailed description is omitted herein, such not being necessary to a full understanding of the invention of this application.

The front end of the spindle is connected with a chuck 28, a detailed construction of which not being essential to an understanding of the present invention, is not specifically illustrated and described herein reference being had to my hereinbefore mentioned application (Case III) for such detailed illustration and description thereof, it being sufficient for this case to mention that the spindle 16 is moved endwise to operate the chuck by means of a clutch collar 29 mounted on a sleeve 9 in which the spindle is located, said collar being manually operated as by a hand lever 30, and said collar being connected with clutch levers 31 in a manner that will be readily understood for operation of said levers to impart endwise movement to said spindle.

A tail stock 32 is slidably mounted on the beam 12 and contains a chuck comprising a fixed jaw 99 and a clamping jaw 100, the

specific actuating mechanism therefor not being shown herein, but which is illustrated in detail in my hereinbefore mentioned application (Case III), it being sufficient to state that said chuck may be operated by a handle 33, or by a connection embodying a connecting rod 101 having a rack engaging a pinion on a jaw actuating shaft 102 having a cam to actuate said chuck jaw as shown in Figures 9 and 10. Said rod 101 has another rack engaged with a pinion 103 meshing with a pinion secured to the shaft of the hand lever 30 as shown in Figure 1 and as fully illustrated and described in my copending application of S. No. 120,358 (Case II) filed concurrently herewith on July 3, 1926 and which mechanism includes, among other devices, centering fingers 34—35 and actuating mechanism therefor, but which are not claimed in the present application.

The sleeve 22, hereinbefore referred to, has a pulley 36 keyed thereto and that receives a belt 37 extending to a pulley 38 fast to a short shaft 39 mounted in a bearing in one of the ends 11. This shaft has a pinion 40 for driving a train of gears and pinions 41—42—43—44, the latter being secured to one member 45 of a one revolution clutch rotatably mounted in a frame end 11 and adapted for continuous rotation. This member 45 is adapted to be connected with the other member 46 of said clutch, as by means of a pawl 47 rotatably mounted in a ring 48 secured to the clutch member 46 and operated by means of a spring pressed clutch lever 49 secured to the pawl and adapted to rotate or tip it so that its edge will engage within notches 50 in the clutch member 45. When the pawl is in the position shown in Figure 6, no clutching action takes place, but when it is tipped to one side by the operation of its spring, then its edge will engage a notch 50 and the members 45—46 will be operatively connected.

The object of connecting the two clutch members is to provide a forward feed of cotton or other strands 51, as well as for a supply of wires between which the strands are secured, the operation of these clutch members being effected by a treadle 52 pivotally mounted on an end 11 and forced in one direction by means of a spring, a clutch operating rod 53 extending from the treadle to a clutch operating arm 54 secured to a rock shaft 55 mounted in the bracket 18 and having a catch 56 positioned to engage a latch 57 pivotally mounted on a latch support 58 in a manner to yield to permit movement of the catch 56 upwardly, but to resist its movement downwardly and thereby cause the support 58 to be moved to rock a shaft 59 having a stop 60 projecting into the path of movement of the lever 49, and as shown in Figure 2 of the drawings. The rock shaft 59 is held as by means of a spring

(see Figure 2) with the stop in the path of movement of the lever 49. Pins 118 limit movement of the stop 60.

A rod feeding cam 61 is secured to the clutch member 46 and has two lobes adapted to engage a roller on a rod releasing lever 62 pivotally mounted on the end of the frame and connected by a link 63, arm 64, pawl 65, and ratchet 66 with a rod feeding shaft 67 mounted for rotating step-by-step movement in side parts 68 of a wire supporting rack 69 secured to and rising from a beam 70 secured to the upper edges of the ends 11 and extending across the machine frame. This rack has in each side a groove comprising a runway 71 for wires or rods 72 supported in said runway, one upon another, the opposite ends of the lower rod or wire resting in a notch in a feed wheel 73, these feed wheels being supported by and secured to the shaft 67. A supporting notched wheel may be secured to said shaft intermediate the wheels 73 for the purpose of preventing a sagging of the wires.

A strand feeding pinion 74 attached to the clutch member 46 meshes with a strand feeding gear 75 and an intermediate gear 76, the latter meshing with a strand feeding gear, both of said strand feeding gears being secured to the shafts of strand feeding rolls 77—78 mounted in the ends 11 and extending across the machine, the gear 76 being mounted in a link 117—see Figure 5.

The mop material 51, comprised of strands of cotton or other suitable fiber, extends from rolls (not shown) between guide flanges 79 secured to a rod supported by brackets 80 on the ends 11 of the frame, and as shown in Figure 4 of the drawings. Said strands 51 are extended by the rolls 77—78 across a table 81 pivotally mounted on brackets 82 as by means of a shaft 83. This table has a groove 84 in its upper surface for the reception of wires across which the strands 51 are projected. A connecting rod 85 extends from the under side of the table, to which it is pivotally connected, to a foot treadle 86 by means of which the table is manually lowered, and which table is drawn upwardly by a spring, as shown in Figure 1.

There are parts shown in the drawing herein that go to make up the machine as a whole, but which are comprised in other inventions than that claimed herein, and, therefore, omission is made herein of specific reference to said parts.

In the operation of the machine, the parts being in the positions shown in Figure 4, a mop structure is in the process of being made, the mop material having been projected across a wire previously dropped in the groove 84 in the table 81, and a second wire having been dropped on top of said material.

In effecting this operation the treadle 52 was depressed thereby releasing the clutch lever 49 and operating the pawl 47 to connect the clutch members 45—46. It will be noted that while this wire feeding and material feeding mechanism is driven from the main driving mechanism of the machine it is at times disconnected therefrom and manually actuated means are made use of for connecting this feeding mechanism with the main driving mechanism of the machine. When the stop 60 is disengaged from the lever 49 the latter will move promptly and avoid any immediate reengagement of said parts by the action of the spring connected with the stop 60. The release of the lever 49 will connect the clutch members 45—46, and the latter will remain thus clutched during one revolution of the lever 49, at the end of which said lever coming in contact with the stop 60 will effect disengagement of said clutch members and it will, therefore, be noted that one revolution of the lever 49 is sufficient to drop two wires and to feed a sufficient length of mop material between said wires.

This constitutes in effect a mechanism comprising an entirety which may be connected with the main driving mechanism of the machine but which connection is under manual control.

A cutter 87 is operated to cut the mass 88 of mop material, said cutter being mounted on a carriage 104 mounted to travel on the rails 13, and as shown in Figure 4 of the drawings, a motor 105 on said carriage being employed to drive the cutter. The carriage is periodically at rest and is adapted to be connected with the main driving mechanism of the machine, this connection being manually controlled as by means of a handle lever 106 projecting from a rock shaft 107 and having a bevel pinion in mesh with a bevel pinion on a rock shaft 108, the latter having a clutch actuating arm 109 in engagement with a toothed clutch member 110 slidably mounted on a shaft 111 and bearing bevel gears 112—113 freely rotatably mounted on the shaft 111, said toothed clutch member being splined to said shaft and, therefore, adapted to rotate said shaft in opposite directions depending upon which gear 112 or 113 it is engaged with, said gears being meshed with a bevel pinion 114 rigid with the pinion 40 and consequently driven by the belt 37.

The twisting operation is now effected by mechanism set in operation by pressure on the treadle 86, as hereinbefore described. After the twisting operation ceases the mop is removed by the manual release of the chucks through operation of the hand lever 30 as hereinbefore described, and the machine comes to rest with the exception of the pulleys 21, 36 and 38, and the train of gears

40 to 44. The treadle 52 now being depressed, the shaft 55 and catch 56 are operated to engage the latter with the latch 57, thereby removing the stop 60 from engagement with the clutch lever 49 that, being actuated by its spring to rock the pawl 47 for engagement with the notches 50 and thereby connecting the clutch members, starts operation of the pinion 74 and therefore of the strand feeding mechanism to project the mass 88 of said strands upon the table 81 and across a wire in the groove 84, said wire having been just previously dropped into said groove by operation of a lobe on the cam 61 that started to rotate at the same time that the feed began.

After the mass has been projected across the wire another lobe of the cam operates the wire feeding mechanism to drop another wire on top of the mass of mop material. This brings the parts into the position shown in Fig. 4 at the point where the above description of the operation of the machine began.

In order to provide for the making of mops having mop material of different lengths, the spindle 16 is eccentrically mounted so that it may be carried toward or from the rolls 77-78, in the structure herein shown a bearing bushing 116 in which the spindle supporting sleeve 22 is located being eccentrically mounted in the end portion 11 of the frame, and as shown in Figure 7 of the drawings.

In order to regulate the movements of the cutter and prevent binding thereof when it comes to a stop, a brake mechanism generally denoted by the numeral 115 is applied to the shaft 111 and as shown in Figure 2 of the drawings.

In accordance with the provisions of the patent statutes I have described the principles of operations of my invention, together with the device which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is only illustrative and that the invention may be carried out by other means and applied to uses other than those above set out.

I claim—

1. A mop making machine comprising a wire twisting mechanism with means for operating it, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding mechanism and said material feeding mechanism to cause simultaneous operation of both of said mechanisms when either operates and manually actuated means for controlling an operation of said wire feeding and material feeding mechanism.

2. A mop making machine comprising a

wire twisting mechanism with means for operating it, a wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding mechanism and said material feeding mechanism to cause simultaneous operation of both of said mechanisms when either operates, means for initiating operation of said wire feeding and material feeding mechanisms, and manually operated means for initiating operation of said twisting mechanism.

3. A mop making machine comprising a wire twisting mechanism with means for operating it and including manually actuated means for separately controlling its operation, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding and material feeding mechanism to cause simultaneous operation of both when either operates, and manually actuated means for controlling the operation of said wire feeding and material feeding mechanisms.

4. A mop making machine comprising a wire twisting mechanism comprising manually actuated means for controlling its operation, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, driving means, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both when either operates, means for connecting and disconnecting said wire twisting mechanism and said driving means, means for connecting and disconnecting said wire feeding and material feeding mechanisms and said driving means, and manually operated means for controlling the operation of said connecting and disconnecting means between said feeding mechanism and said driving means.

5. A mop making machine comprising a wire twisting mechanism with means for operating it, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for projecting mop material across one of said wires preparatory to receiving another wire thereon, said material to be twisted in said wires, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both when either operates, and manually actuated means for controlling the operation of said wire feeding and material feeding mechanisms.

6. A mop making machine comprising a wire twisting mechanism with means for operating it, wire feeding mechanism for intermittently feeding wires to said twisting

mechanism, mechanism for projecting an indefinite length of mop material across one of said wires preparatory to receiving another wire thereon, said material to be twisted in said wires, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both when either operates, manually actuated means for controlling the operation of said wire feeding and material feeding mechanisms, and means connected with one of said mechanisms and operated thereby for severing said mop material.

7. A mop making machine comprising a wire twisting mechanism with means for operating it, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for projecting an indefinite length of mop material across one of said wires preparatory to receiving another wire thereon, said material to be twisted in said wires, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both of said mechanisms when either operates, manually operated means for controlling the operations of said wire feeding and material feeding mechanisms, independently operated means for severing said mop material, and manually actuated means for controlling operation of said severing mechanism.

8. A mop making machine comprising a wire twisting mechanism with means for operating it and including manually actuated means for controlling its operation, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for projecting an indefinite length of mop material across one of said wires preparatory to receiving another wire thereon, said material to be twisted in said wires, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both when either operates, manually actuated means for controlling operation of said wire feeding and material feeding mechanisms, independently actuating mechanism for severing said mop material, and manually actuated means for controlling operation of said severing mechanism.

9. A mop making machine comprising a wire twisting mechanism, mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, said twisting mechanism including manually actuated means for clamping said wires, and means for rotating said twisting mechanism.

10. A mop making machine comprising a wire twisting mechanism, mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop

material between said wires to be twisted therein, said twisting mechanism including means for clamping said wires, means for rotating said twisting mechanism, and manually actuated means for controlling rotation of said twisting mechanism.

11. A mop making machine comprising a wire twisting mechanism, mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both when either operates, manually actuated means for controlling operation of said wire feeding and material feeding mechanisms, said twisting mechanism including manually actuated means for clamping said wires, and means for rotating said twisting mechanism.

12. A mop making machine comprising a wire twisting mechanism, mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both of said mechanisms when either operates, said twisting mechanism including means for clamping said wires, means for rotating said twisting mechanism, and manually actuated means for controlling rotation of said twisting mechanism.

13. A mop making machine comprising a wire twisting mechanism, means for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding mechanism and said material feeding mechanism to cause simultaneous operation of both when either operates, manually actuated means for controlling operation of said wire feeding and material feeding mechanisms, said twisting mechanism including manually actuated means for controlling its operation, and means for clamping said wires.

14. A mop making machine comprising a wire twisting mechanism, mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, a connection between said wire feeding and material feeding mechanisms to cause simultaneous operation of both when either operates, manually actuated means for controlling operations of said wire feeding and material feeding mechanisms, said twisting mechanism including means for rotating it, and manually actuated means for clamping said wires.

15. A mop making machine comprising a wire twisting mechanism with means for

operating it, means for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, means for effecting a connecting and disconnecting operation of said wire feeding and material feeding mechanisms with respect to said twisting mechanism, manually actuated means for effecting one operation of said connecting means, and automatic means for effecting another operation of said connecting means.

16. A mop making machine comprising a wire twisting mechanism with means for operating it, mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, means for connecting and disconnecting said wire feeding and material feeding mechanisms with respect to said twisting mechanism, manually operated means for effecting said connection, and automatically actuated means for effecting said disconnection.

17. A mop making machine comprising a wire mechanism for feeding wires, mechanism for feeding mop material to be twisted between said wires, twisting mechanism to receive and twist said wires, means for driving said twisting mechanism, means for effecting connecting and disconnecting operations between said twisting mechanism and its driving means, manually actuated means for effecting one of said operations, and automatic means for effecting the other of said operations.

18. A mop making machine comprising a wire mechanism for feeding wires, mechanism for feeding mop material to be twisted between said wires, twisting mechanism to receive and twist said wires, means for driving said twisting mechanism, means for connecting and disconnecting said twisting mechanism and its driving means, manually actuated means for effecting said connection, and automatic means for effecting said disconnection.

19. A mop making machine comprising a wire twisting mechanism, wire feeding mechanism for intermittently feeding wire to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, driving means, a connection between said driving means and said feeding mechanisms and said wire twisting mechanism for controlling the relative operations between said feeding mechanisms and said wire twisting mechanism.

20. A mop making machine comprising a wire twisting mechanism, wire feeding mechanism for intermittently feeding wires to said twisting mechanism, mechanism for feeding mop material between said wires to be twisted therein, driving means, means for connecting said feeding mechanism with

and for disconnecting it from said driving means, and means for connecting said wire mechanism with and for disconnecting it from said driving means.

21. In combination, mechanism for joining together binding elements to secure strand material to the latter, means for feeding binding elements to said mechanism, means for feeding strand material into position to be secured to said elements, and means for controlling the operation of said element feeding and material feeding means.

22. In combination, mechanism for joining together binding elements to secure strand material to the latter, means for feeding binding elements to said mechanism, means for feeding strand material into position to be secured to said elements, a connection between said element feeding and said material feeding means to cause operation of both of said means when either operates, and means for controlling the operation of said element feeding and material feeding means.

23. In combination, mechanism for joining together binding elements to secure strand material to the latter, means for intermittently feeding binding elements to said mechanism, means for feeding strand material into position to be secured to said elements during the interval elapsing between the feeding of two elements which are to be joined together, and means for controlling the operation of said element feeding and material feeding means.

24. In combination, mechanism for joining together binding elements to secure strand material to the latter, means for intermittently feeding binding elements to said mechanism, means for feeding strand material into position to be secured to said elements during the interval elapsing between the feeding of two elements which are to be joined together, a connection between said element feeding and said material feeding means to cause operation of both of said means when either operates, and means for controlling the operation of said element feeding and material feeding means.

25. In combination, mechanism for joining together binding elements to secure strand material to the latter, means for feeding binding elements to said mechanism, means for feeding strand material into position to be secured to said elements, means for controlling the operation of said element feeding and material feeding means, and means selectively connected to said mechanism and operated thereby for severing the strand material from its source of supply.

26. In combination, mechanism for joining together binding elements to secure strand material to the latter, means for feeding binding elements to said mechanism, means for feeding strand material into po-

sition to be secured to said elements, a connection between said element feeding and said material feeding means to cause operation of both of said means when either operates, means for controlling the operation of said element feeding and material feeding means, and means selectively connected to said mechanism and operated thereby for severing the strand material from its source of supply.

27. In combination, mechanism for join-

ing together a pair of binding elements to secure strand material thereto, means for feeding the binding elements to said mechanism, means for feeding the strand material to said mechanism, driving means for the mechanism, a selectively connectible drive between said mechanism and the feeding means, and means for preventing more than one operation of said feeding means for each operation of said mechanism.

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